



Photoelectric sensors  
V180-2, Photoelectric retro-reflective sensor,  
Standard optics

VL180-2N42431

im0036730

**Model Name** > [VL180-2N42431](#)  
**Part No.** > [6041817](#)



im0036730

*Illustration may differ*

#### At a glance

- Lowest-cost M18 housing sensor on the market
- Sensing distance up to 7 m
- Polarizing filter ensures reliable detection of highly-reflective objects
- Bright power and signal LEDs with 360° visibility
- Includes reflector
- High switching frequencies up to 1000 Hz
- Available in a metal housing for applications in harsh environments
- Optical axis selectively axial or radial (90°)

#### Your benefits

- Lowest-cost M18 cylindrical sensor on the market reduces installation costs
- Bright red sender LED simplifies alignment and saves installation time
- Bright power and signal LEDs with 360° visibility offer quick and simple troubleshooting, reducing maintenance time and costs
- The flat and smooth lens reduces the collection of dust and dirt, ensuring safe operation with less maintenance and fewer costs
- Polarizing filter prevents false readings on reflective surfaces, reducing downtime



#### Features

|                                  |                                                        |
|----------------------------------|--------------------------------------------------------|
| Sensor/detection principle:      | Photoelectric retro-reflective sensor, Standard optics |
| Housing design (light emission): | Cylindrical, straight                                  |
| Housing length:                  | 70.2 mm                                                |
| Thread diameter (housing):       | M18 x 1                                                |
| Optical axis:                    | Axial                                                  |
| Sensing range max.:              | 0.05 m ... 7 m <sup>1)</sup>                           |
| Sensing range:                   | 0.05 m ... 6 m <sup>2)</sup>                           |
| Type of light:                   | Visible red light                                      |
| Light source:                    | LED <sup>3)</sup>                                      |
| Wave length:                     | 645 nm                                                 |
| Angle of dispersion:             | Ca. 4.5 °                                              |
| Adjustment:                      | Potentiometer, 270°                                    |
| Light spot size (distance):      | Ø 400 mm (6 m)                                         |

<sup>1) 2)</sup> PL80A <sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C

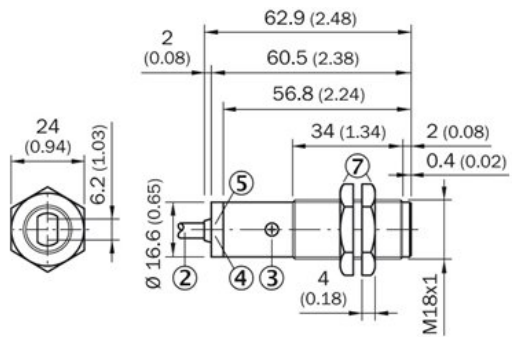
## Mechanics/electronics

---

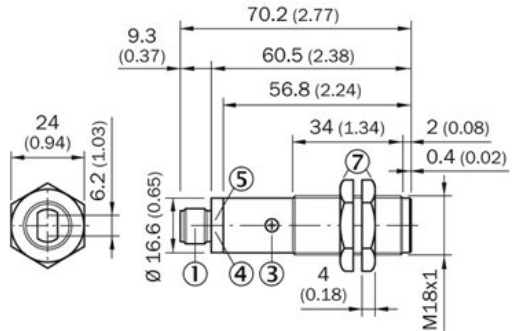
|                                   |                                                   |
|-----------------------------------|---------------------------------------------------|
| Supply voltage:                   | 10 V DC ... 30 V DC <sup>1)</sup>                 |
| Ripple:                           | ± 10 %                                            |
| Power consumption:                | 30 <sup>2)</sup>                                  |
| Output type:                      | NPN, open collector <sup>3)</sup>                 |
| Switching mode:                   | Light/dark-switching <sup>4)</sup>                |
| Switching mode selector:          | Selectable via L/D control wire                   |
| Signal voltage NPN HIGH/LOW:      | Approx. VS / < 1.8 V                              |
| Output current I <sub>max</sub> : | ≤ 100 mA                                          |
| Response time:                    | ≤ 0.5 ms <sup>5)</sup>                            |
| Switching frequency:              | 1,000 Hz <sup>6)</sup>                            |
| Connection type:                  | Connector M12, 4-pin                              |
| Circuit protection:::             | A, B, D <sup>7)</sup> <sup>8)</sup> <sup>9)</sup> |
| Protection class:                 | III                                               |
| Weight:                           | 47 g                                              |
| Polarisation filter:              | ✓                                                 |
| Special device:                   | -                                                 |
| Housing material:                 | Nickel-plated brass and PC, Metal                 |
| Optics material:                  | PMMA                                              |
| Enclosure rating:                 | IP 67                                             |
| Items supplied:                   | Fastening nuts (2 x), Reflector P250              |
| Ambient operating temperature:    | -25 °C ... 55 °C                                  |
| Ambient storage temperature:      | -40 °C ... 70 °C                                  |

<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A   <sup>2)</sup> Without load   <sup>3)</sup> <sup>4)</sup> Control wire open: light-switching L.ON   <sup>5)</sup> Signal transit time with resistive load   <sup>6)</sup> With light/dark ratio 1:1   <sup>7)</sup> A = V<sub>S</sub> connections reverse-polarity protected   <sup>8)</sup> B = inputs and output reverse-polarity protected   <sup>9)</sup> D = outputs overcurrent and short-circuit protected

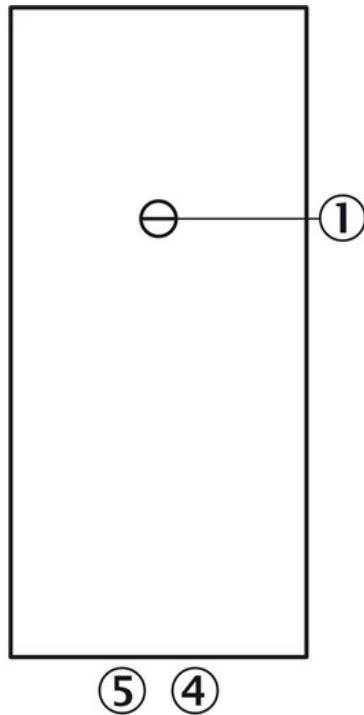
## Dimensional drawing



- [1] Connector M12, 4-pin
- [2] Connection cable 2 m
- [3] Sensitivity adjustment 270°
- [4] LED indicator orange: switching output active
- [5] LED indicator green: strength indicator
- [7] fastening nuts (2 x); 24 mm hex, metal

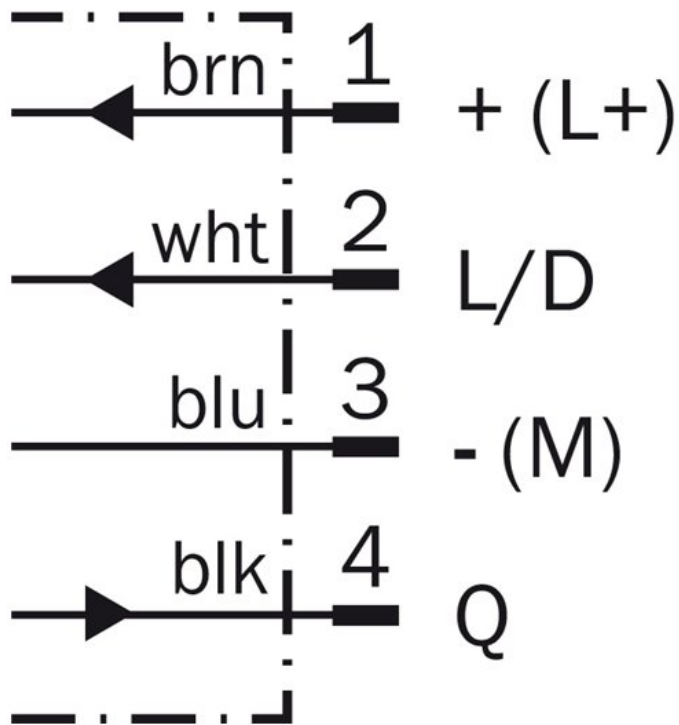


## Adjustments possible

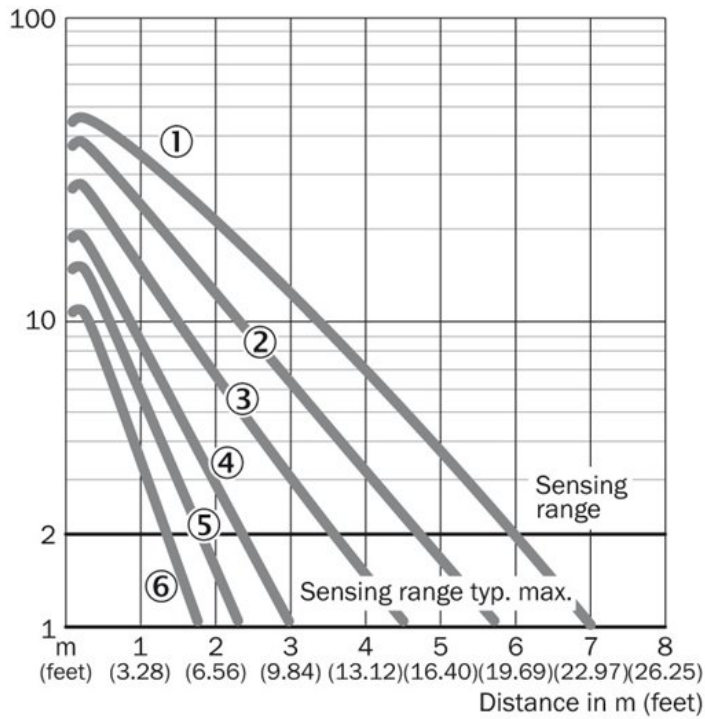


- [3] Sensitivity adjustment 270°
- [4] LED indicator orange: switching output active
- [5] LED indicator green

## Connection diagram

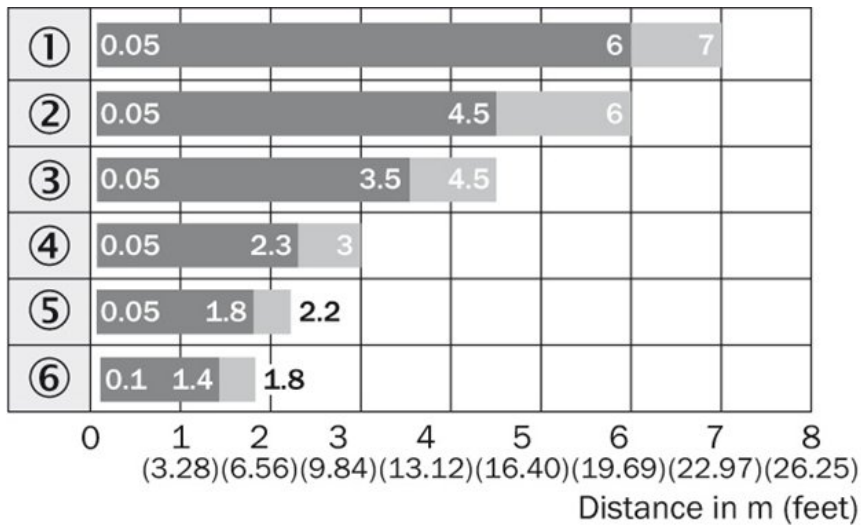


## Characteristic curve



- [1] PL80A
- [2] P250, PL40A, PL50A, C110A
- [3] PL30A, PL31A
- [4] PL20A
- [5] P45
- [6] Reflective tape Diamond Grade

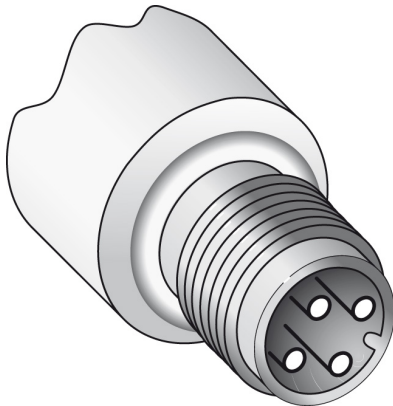
## Sensing range diagram



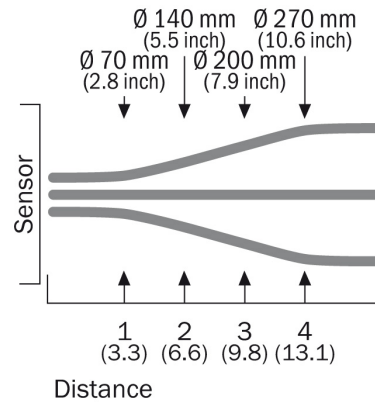
- |1| PL80A
- |2| P250, PL40A, PL50A, C110A
- |3| PL30A, PL31A
- |4| PL20A
- |5| P45
- |6| Reflective tape Diamond Grade

Sensing range
  Sensing range max.

## Connection type



## Light spot size



#### **Australia**

Phone +61 3 9457 0600  
1800 334 802 – tollfree  
E-Mail sales@sick.com.au

#### **Belgium/Luxembourg**

Phone +32 (0)2 466 55 66  
E-Mail info@sick.be

#### **Brasil**

Phone +55 11 3215-4900  
E-Mail sac@sick.com.br

#### **Canada**

Phone +1 905 771 14 44  
E-Mail information@sick.com

#### **Ceská Republika**

Phone +420 2 57 91 18 50  
E-Mail sick@sick.cz

#### **China**

Phone +86 4000 121 000  
E-Mail info.china@sick.net.cn  
Phone +852-2153 6300  
E-Mail ghk@sick.com.hk

#### **Danmark**

Phone +45 45 82 64 00  
E-Mail sick@sick.dk

#### **Deutschland**

Phone +49 211 5301-301  
E-Mail kundenservice@sick.de

#### **España**

Phone +34 93 480 31 00  
E-Mail info@sick.es

#### **France**

Phone +33 1 64 62 35 00  
E-Mail info@sick.fr

#### **Great Britain**

Phone +44 (0)1727 831121  
E-Mail info@sick.co.uk

#### **India**

Phone +91-22-4033 8333  
E-Mail info@sick-india.com

#### **Israel**

Phone +972-4-6801000  
E-Mail info@sick-sensors.com

#### **Italia**

Phone +39 02 27 43 41  
E-Mail info@sick.it

#### **Japan**

Phone +81 (0)3 3358 1341  
E-Mail support@sick.jp

#### **Magyarország**

Phone +36 1 371 2680  
E-Mail office@sick.hu

#### **Nederlands**

Phone +31 (0)30 229 25 44  
E-Mail info@sick.nl

#### **Norge**

Phone +47 67 81 50 00  
E-Mail austefjord@sick.no

#### **Österreich**

Phone +43 (0)22 36 62 28 8-0  
E-Mail office@sick.at

#### **Polska**

Phone +48 22 837 40 50  
E-Mail info@sick.pl

#### **România**

Phone +40 356 171 120  
E-Mail office@sick.ro

#### **Russia**

Phone +7-495-775-05-30  
E-Mail info@sick.ru

#### **Schweiz**

Phone +41 41 619 29 39  
E-Mail contact@sick.ch

#### **Singapore**

Phone +65 6744 3732  
E-Mail admin@sicksgp.com.sg

#### **Slovenija**

Phone +386 (0)1-47 69 990  
E-Mail office@sick.si

#### **South Africa**

Phone +27 11 472 3733  
E-Mail info@sickautomation.co.za

#### **South Korea**

Phone +82 2 786 6321/4  
E-Mail info@sickkorea.net

#### **Suomi**

Phone +358-9-25 15 800  
E-Mail sick@sick.fi

#### **Sverige**

Phone +46 10 110 10 00  
E-Mail info@sick.se

#### **Taiwan**

Phone +886-2-2375-6288  
E-Mail sales@sick.com.tw

#### **Türkiye**

Phone +90 (216) 528 50 00  
E-Mail info@sick.com.tr

#### **United Arab Emirates**

Phone +971 (0) 4 8865 878  
E-Mail info@sick.ae

#### **USA/México**

Phone +1(952) 941-6780  
1 800-325-7425 – tollfree  
E-Mail info@sickusa.com

More representatives and agencies  
at [www.sick.com](http://www.sick.com)